Helping Frogs Cross During Amphibian Migration: An Adventure

By Suzanne Church

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When the first rains come each Spring, snowpack has melted, and temperatures climb to about 40 degrees, amphibians come out of their underground burrows and journey to a wetland to breed. They travel after dark to stay hidden from predators, and migrate in rain so their skin stays moist. This migration event is known as "Big Night." The migrations to wetlands continue on a smaller scale throughout the spring, and amphibians eventually cross back to their woodland homes. When the frogs are on the move, salamanders may still be deep below the forest floor, but eventually they come out with warming spring temperatures. A main link in ecosystem food webs, frogs and salamanders are considered indicator species for overall ecosystem health.

Today many frogs and salamanders inevitably have to cross roads to reach their wetlands, and Big Night volunteer movements to help them cross safely have been on the rise. Most amphibian crossing "hot spots" occur at sites with wetlands that are within 100 meters of the road. Just a small amount of traffic can cause a lot of amphibian deaths: In one study, just 15 cars/hour killed over half of the amphibians trying to cross. In a study in New York, there was 50-100% mortality of salamanders attempting to cross a paved, rural road. In such places, automobile culture can bring about extirpation of certain species.

This Spring we had the good fortune of Big Night happening during April vacation. While eating pizza we looked at the Lebanon Conservation Commission's Salamander Crossing map and chose two sites to monitor. Soon after sundown, four adults and four kids put on reflective vests and packed into a car with a couple of "Amphibians Crossing" signs, and drove to our first hot spot in town.

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We head out in the car (a big irony of Big Night) to Heater Road in Lebanon, wondering if this will indeed be a Big Night. Traveling beyond The Fort, we see our first siting — a Spring

Peeper a couple feet in front of us winging off the side of the road as we near Hypertherm. It has so much forward momentum and leaping height that it's body arcs in the air, and it looks like it might do a flip. YES — it made it! Big Night is on!

We park the car and get out on foot to cover about 100 yards of road frontage. We make out the forms of frogs, some leaping, some sitting still, while taking care not to step on any as we walk — particularly the tiny Spring Peepers. When we spot something, we scan for cars and carefully pick up the creature by the middle of its body, carry it across the road, take a picture (not to closely with a flash), gently release it on the ground facing the way it's going, and record the species. As the first Big Night of the season, the creatures are on their in-bound migration from the woods — here, from fringes of people's yards — to their wetlands.

We see a number of Wood Frogs, some with middles bulging with egg masses. As one of the most cold-hardy species, Wood Frogs are among the first species to appear in Spring. We come upon a single American Toad and a single Green Frog, straight out of *Frog & Toad Are Friends*. We discover that the whitish imprints on the road are squashed Spring Peepers, and there are a lot of them — we estimate more than 75-90 in just 50 yards, tiny impressionistic ghosts over the asphalt. We also come upon mortally injured frogs, recently hit by a car wheel. A couple of frogs have crushed legs but alert heads and torsos. We gently move an injured Wood Frog to the grass at the side of the road, and cover him loosely with a large leaf. The frog immediately shimmies out from under the leaf using its front body, poking its head out into the aura of flashlights, and seems to stare at us. We watch each other for a few moments, wish it peace, turn back to the road to help others. We see cars pass over frogs that escape the wheels but are limp and still when we pick them up. It seems even the cars that miss the frogs are doing them no good in their navigation. Amphibians have extremely absorbent skin that has to stay moist so they can receive enough oxygen; car exhaust doesn't help, not to mention headlights, noise, and the windy motion of a car passing closely by.

Some of the frogs are headed straight for a chain link fence; once they get through a fence hole a sheer bank with a concrete retainer drops a few feet down. We see a frog leap off the "cliff" and land in leaf debris upside-down, flip itself back over and move along. We follow the line where it's heading, and can just make out a tiny pool, more like a puddle, in the woods between the road and Hypertherm. Continuing down the road, there's a slightly larger pool surrounded by marshy plants and bushes, such as Staghorn Sumac, from which we hear a chorus of Spring Peepers.

We frequently call the kids back from the road, whether it's needed or not; it's somewhat nervewracking to look for frogs, check for cars, retrieve the critters, snap the photos, jot down the data, while constantly watching out for the kids with regards to the cars. Some of the cars pass by fast. Attention to safety is of paramount importance on Big Nights; a 1:1 adult-child ratio is recommended, and reflective vests and bright flashlights are a must. The kids are thrilled when they spot a frog and carry it to safety. At the end of the night they will each exclaim how much fun they had, and the adults have fun, too — but we want to do more, because too many frogs are getting killed and wounded on these nights.

We finish up at this site, hopping out of the car to cross a few more Spring Peepers. At LaBombard Road the first sign of traffic is an alighted bus lumbering toward us — not promising — the bus station is down the road. Car traffic is light however, and we see frogs hopping. A few of us get out

and scout in front of the slowly moving car, which casts a long beam to easily spot frogs. Some frogs are pointed in the direction of the traveling road and are sitting still, and we're not sure which side they're trying to cross to — along sections of the road there are woods or grassy areas on both sides and no visible body of water. It feels like we're working on a tiny section of an amphibian puzzle as we try to piece together where the frogs are coming from and their wetland destinations. The rain has subsided, and the skin of these frogs isn't as moist. Inching forward in the car, we cross over a dozen or so Wood Frogs and Spring Peepers, and see tiny prints of dead Peepers.

A couple of the kids are starting to fall asleep in the back of the car and its time to go home. We cross the last frog and are drawn by clucking sounds to a road-side pool studded with Wood Frogs, who become quiet as we approach. The pool is painted with deep green, umber and rust hues, with myriad commercial light sources reflecting the frogs' gleaming eyes and dark bodies. On the other side of the road, in the distance, we hear a chorus of Spring Peepers — evidence of another community of frogs that made it to their breeding pool. They hold their heads above the water as they languidly float, legs splayed, bodies still. Under the water's surface we spot a single, moon-white cluster of eggs.

The day after Big Night, there's heavy rain and all traces of the frogs' ghostly imprints are washed away. The magic and mystery of these creatures who are all around us in their woodland patches and pools is checked by the light of day. These hot spots and wetlands might abut busy roads, a field of parked cars that was, a few years ago, where kids played soccer, a bus terminal and hotel lot — like this one. The pool where the Wood Frogs gathered runs in a fringe along the road. The water gathers deeply where a culvert emerges from under the road, and travels in a perpendicular stream branch toward a commercial area. The pool is churned up with milk-chocolate colored mud, and speckled with trash — a styrofoam cup, silver can, cigarette butt. In all directions from this stream, so enlivened last night, are roads and commerce, fringed with leftover wetlands.

What happens when a frog or salamander returns to a wetland that's no longer there? What happens to resident wildlife when a wetland is displaced? Where is the balance point between commerce and nature, and preserving natural tracts so that marginalized species can exist?

When I was growing up in New Hampshire, the curved metal drainage bins outside our home were filled regularly with frogs and toads. It was exciting for the neighborhood kids to come upon them, pick them up, watch them hop. Why don't we see more toads and frogs in our yards today? Amphibians are sensitive to pollutants and toxins. Are their wetlands contaminated with industrial and road runoff, trash, pesticides? What is happening in the food chain below them? An American Toad eats up to 10,000 insects a year, yet with pesticides and chemicals in our landscapes and loss of habitat and forage, insect populations are in decline. With far fewer insects today than just a few decades ago, with automobile culture and its infrastructure, and development's march, the frogs are up against huge challenges. They need their food sources and wetlands to survive and reproduce, as much as getting across those roads!

Night changes to day, the ephemeral spectacle has folded up and dissolved like a magic show, and you're left thinking about the frogs — the individuals, the frogs left wounded. You're left with questions — Did that one headed straight down the road find its breeding pool? Witnessing and holding these creatures opened our eyes to this largely unseen stratum of ecology, and has us

thinking about their place in the world, their deserving of respect — each frog floating in its fragile habitat beside its globe of eggs.

What is Big Night?
Every Spring, amphibians migrate en masse from the woods to vernal breeding pools when temperatures are around 40 degrees or higher, snowpack has melted, and it's raining. There is often one "Big Night" and many smaller nights throughout Spring, during in-bound (to vernal pools) and out-bound (back to the woods) migrations. Inevitably, some of these creatures need to cross roads to get to their wetlands, and that's where people come in to help them cross.

Why participate in a Big Night?
—Help frogs and salamanders cross the roads and stay safe.
—Help gather local amphibian data and map local wetland resources and crossing hot spots.
—Enjoy hands-on, in-the-field environmental education with kids.
—Help build community of those interested in biodiversity and conservation.
—Learn more about amphibians and interconnected ecology.
—Getting out on Big Night is potentially a magical, eye-opening and saddening, impressionable and memorable experience. Having hands-on experiences and sharing our stories will help cultivate long-term awareness and caring for these species.

How do you prepare for Big Night?
—Review Big Night volunteer notes, ID sheets, weather forecasting and other resources from the Harris Center: www.harriscenter.org. Attend a Harris Center training if you can, often held in March.

—Pack a bag to have ready with: reflective vests and raingear, flashlights or headlamps, data sheets and pencils, camera. Make "Amphibian Crossing" signs to post on the roadside. Cones or reflective posts are also helpful for marking a road segment.

—Pay attention to the weather and conditions to determine when Big Night will be!

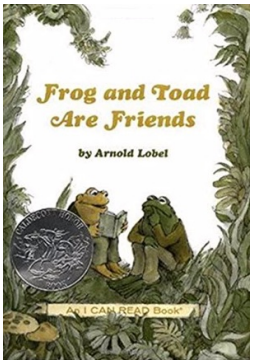
What do you do on Big Night?
Journey slowly and carefully to your hot spot with your gear. As you work, shine your flashlight before you and be very careful to not step on tiny Spring Peepers or salamanders. Step way to the side when a car approaches. When you spot a creature, carefully pick it up by it's mid-section, never by a leg or tail, cradle it in your hands, and carry it across the road in the direction it was headed (on Big Night, it's heading from the woods to wetlands to breed). Take a photo if you can and record the species. Gently release the creature on the ground away from the road. Take notes of where the creatures seem to be coming from and where they're going — is there an identifiable vernal pool? Have fun!

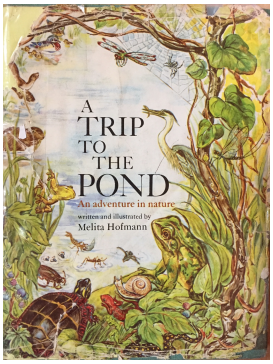
Is Big Night fun for kids?

Big Night is a blast for kids. It's also a fantastic opportunity for hands-on environmental education. However, Big Night is not recommended for young children, and a 1:1 adult-to-child ratio is advised. Safety should never be risked trying to save a creature. *All participants must wear a reflective vest!*

What else can I do to help?
—Don't drive on warm, rainy spring nights (unless you're going out for Big Night!)
—Report sightings of amphibian crossing points to the Lebanon Conservation Commission for their mapping project. (See below.)
—Learn all you can about these incredible migrations, habitat needs and challenges, and interconnected ecology of amphibians, and help protect and conserve wetlands.
—Spread the word and your Big Night stories.

RELATED BOOKS FOR KIDS (and adults):





Frog and Toad Are Friends by Arnold Lobel
This classic children's book series tells about the adventures of an frog and toad and their hilarious dynamics.

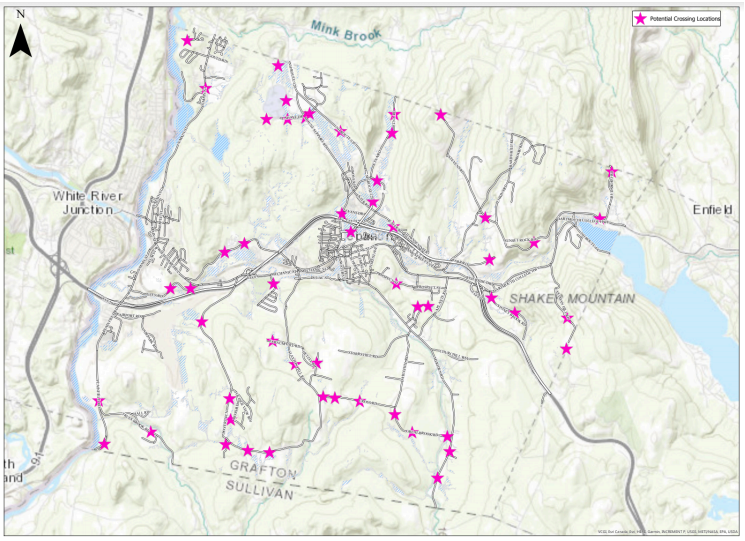
A Trip to the Pond by Melita Hofmann
An evocatively illustrated vintage book about pond life covering many layers of pond ecology. Check at your library; used copies are available online.

Big Night for Salamanders by Sarah Marwil Lamstein
An illustrated account of Big Night for younger children.

MORE INFORMATION & RESOURCES:

The Harris Center for Conservation Education
www.harriscenter.org
This nonprofit in the Monadnock region has an abundance of resources about all aspects of Amphibian Migration and Big Night.

Lebanon hot spot mapping:
The Lebanon Conservation Commission is developing an interactive GIS map, accessible from desktop or phone, that will be available to the public for identifying amphibian crossing hot spots. The map includes sites identified by ecologist Rick Van de Poll, who authored a *Natural Lebanon: a Natural Resource Inventory of Lebanon*. Volunteers will be able to use the map to choose where to



monitor and contribute data from the field. For more information, email Mark Goodwin: Mark.Goodwin@lebanonnh.gov.

Lebanon Amphibian Crossing Project resources:
This public folder has resources for community members who would like to get involved on Big Nights. Link: https://bit.ly/2ZV7ZCE